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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/525,274	04/07/2005	James John Schmitt	ACA6276PIUS	4986
<div>7590 Ralph J Mancini Akzo Nobel Inc Intellectual Property Department 7 Livingstone Avenue Dobbs Ferry, NY 10522-3408</div>			<div>EXAMINER MCNELIS, KATHLEEN A</div> <div>ART UNIT 1742</div> <div>PAPER NUMBER</div>	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		01/18/2007	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/525,274

Applicant(s)

SCHMITT ET AL.

Examiner

Kathleen A. McNelis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) 8 and 9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 10 and 11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-11 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **Claims Status**

Claims 1-11 remain for examination wherein claims 1, 2 and 5 are amended, claims 7-11 are new and claims 8 and 9 are withdrawn as being drawn to a non-elected species.

### **Status of Previous Rejections**

The rejection of Claims 5 and 6 under 35 U.S.C. 102(b) as being anticipated by Chinese patent No. 1153218 (CN '218) is withdrawn in view of amendments to the claims.

The rejection of Claims 1, 2 and 4 under 35 U.S.C. 103(a) as being unpatentable over Chinese patent No. 1153218 (CN '218) is maintained.

The rejection of Claim 3 under 35 U.S.C. 103(a) as being unpatentable over Chinese patent No. 1153218 (CN '218) as applied to claim 1 and in further view of Morris (U.S. Pat. No. 6,689,184) is maintained.

### **Examiner's Comments**

Claim 10 recites that the source of boron-containing compounds is derived from ulexite, colemanite, Gerstley, Laguna Murray's, Gillespie, and mixtures thereof. As stated, it is unclear if the claim requires all recited sources to be present, (in which "mixtures thereof" is redundant) or if there was a typographical error omitting "or". Examiner has assumed that the intended wording was that any of ulexite, colemanite, Gerstley, Laguna Murray's, Gillespie, or mixtures thereof are used as the source of boron containing compound.

### **DETAILED ACTION**

#### ***Election/Restrictions***

Restriction is required under 35 U.S.C. 121 and 372.

This application contains claims directed to more than one species of the generic invention. These species are deemed to lack unity of invention because they are not so linked as to form a

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single general inventive concept under PCT Rule 13.1.

The species are as follows:

1. boron oxide,
2. calcium borate (or calcium tetraborate as species of calcium borate),,
3. sodium borate (or sodium tetraborate as species of sodium borate),
4. boron nitride,
5. any of the possible binary mixtures of boron oxide, calcium borate, sodium borate and boron nitride (e.g. calcium borate and sodium borate)
6. any of the possible ternary mixtures of boron oxide, calcium borate, sodium borate and boron nitride (e.g. boron oxide, calcium borate and sodium borate), or
7. the quaternary mixture of ternary mixtures of boron oxide, calcium borate, sodium borate and boron nitride.

Applicant is required, in reply to this action, to elect a single species to which the claims shall be restricted if no generic claim is finally held to be allowable. The reply must also identify the claims readable on the elected species, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered non-responsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

The claims are deemed to correspond to the species listed above in the following manner:

Claims 1, 4, 5, 6 and 10: boron oxide, calcium borate, sodium boarate, or boron nitride or mixtures thereof

Claim 2: sodium tetraborate (species of sodium borate), or calcium tetraborate (species of calcium borate) or mixtures thereof.

Claim 3: sodium borate

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Claim 7: sodium tetraborate

Claim 8: calcium borate

Claim 9: calcium tetraborate

Claim 11: sodium tetraborate or calcium tetraborate or mixtures thereof

The following claim(s) are generic: None.

The species listed above do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, the species lack the same or corresponding special technical features for the following reasons:

The process for producing the pellets with the genus "boron-containing compound" is known as set forth on pp. 3-4 of the 05/31/2006 Office Action and disclosed in Chinese patent CN 1153218 (CN '218).

During a telephone conversation with Mr. Ralph Mancini on 01/10/2007 a provisional election was made with traverse to prosecute the species of sodium borate, claim in claims 1-7, 10 and 11. Affirmation of this election must be made by applicant in replying to this Office action. Claims 8 and 9 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chinese patent No. 1153218 (CN '218).

CN '218 is applied as set forth in the 05/31/2006 Office action.

With respect to the amended limitations to claims 1 and 2 regarding the boron-containing compounds, claim 1 recites that a binder is selected from a Markush group of boron-containing

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compounds<sup>1</sup>, calcium fluoride and combinations thereof. CN '218 discloses fluorite (i.e. calcium fluoride) as discussed on p. 3 of the 05/31/2006 office action, and therefore meets the limitations of claims 1 and 2 as amended.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chinese patent No. 1153218 (CN '218) as applied to claim 1 and in further view of Morris (U.S. Pat. No. 6,689,184).

CN '218 in view of Morris is applied as set forth in the 05/31/2006 Office action.

Claims 5-7, 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chinese patent No. 1153218 (CN '218) as applied to claim 1.

CN '218 is applied as set forth above regarding claim 1.

With respect to claims 5 and 6, CN '218 discloses a method for producing high temperature oxidized iron ore pellets using an additive of bentonite, carboxymethyl cellulose (i.e. a cellulose ether), boric acid, and boron sludge (abstract) and calcium fluoride (i.e. fluorite) is also added (claim 3). The pellets are made by mixing raw materials containing iron with an additive and manually or mechanically mixing to achieve uniformity then dried, preheated, calcined soaked and cooled (pg. 3 of translation).

With respect to claims 7 and 10, claim 1 recites that a binder is selected from a Markush group of boron-containing compounds, calcium fluoride and combinations thereof. CN '218 discloses fluorite (i.e. calcium fluoride) as discussed on p. 3 of the 05/31/2006 office action, and therefore meets the limitation of claims 7 and 10.

With respect to claim 11, CN '218 discloses a method for producing high temperature oxidized iron ore pellets using an additive of bentonite, carboxymethyl cellulose, boric acid, and

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<sup>1</sup> With respect to the amended limitation to claim 1 that the boron-containing compound is selected from boron oxide, calcium borate, sodium borate, boron nitride and mixtures thereof, applicant has elected (with traverse) the species

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boron sludge (abstract). Calcium fluoride (i.e. fluorite) is also added (claim 3). The pellets are made by mixing raw materials containing iron with an additive and manually or mechanically mixing to achieve uniformity then dried, preheated, calcined soaked and cooled (pg. 3 of translation). Examiner contends that the binder is substantially free of hydrophobic liquid since CN '218 teaches that it contains up to 15% moisture (1<sup>st</sup> ¶ of p. 3 of translation).

CN '218 discloses that green pellets are loaded into a furnace, kiln or calciner, where pellets are dried, preheated, and calcined (p. 3). Examiner contends that drying, preheating and calcining are stages of heating. In examples, calcine temperatures ranged from 1150 to 1200 °C (Table 3 p. 5 of translation). It is the examiner's position that the applicant has not established the criticality of the claimed temperature range of 1275 to 1350 °C and that the range of 1150 to 1200 °C is close enough to the claimed range of 1275 to 1350 °C that one of ordinary skill in the art would expect the same properties to result (see M.P.E.P § 2144.05 regarding close ranges). Further, it is well settled that where the principal difference between a claimed process and that taught by reference is a temperature difference, it is incumbent upon applicants to establish the criticality of that difference (Ex parte Khusid, et al., 174 USPQ 59).

Claims 1-7 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over CN '218 in view of Soviet Union patent 1678867 (SU '867), or Stewart et al. (U.S. Pat. No. 3,816,099) or Lewis et al. (U.S. Pat. No. 3,809,547).

CN '218 discloses a method for producing high temperate oxidized iron ore pellets using an additive of bentonite, carboxymethyl cellulose, boric acid, and boron sludge (abstract). Calcium fluoride (i.e. fluorite) is also added (claim 3). The pellets are made by mixing raw materials containing iron with an additive and manually or mechanically mixing to achieve

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uniformity then dried, preheated, calcined soaked and cooled (pg. 3 of translation). Examiner contends that the binder is substantially free of hydrophobic liquid since CN '218 teaches that it contains up to 15% moisture (1<sup>st</sup> ¶ of p. 3 of translation).

CN '218 discloses that green pellets are loaded into a furnace, kiln or calciner, where pellets are dried, preheated, and calcined (p. 3). Examiner contends that drying, preheating and calcining are stages of heating. In examples, calcine temperatures ranged from 1150 to 1200 °C (Table 3 p. 5 of translation). It is the examiner's position that the applicant has not established the criticality of the claimed temperature range of 1275 to 1350 °C and that the range of 1150 to 1200 °C is close enough to the claimed range of 1275 to 1350 °C that one of ordinary skill in the art would expect the same properties to result (see M.P.E.P. § 2144.05 regarding close ranges). Further, it is well settled that where the principal difference between a claimed process and that taught by reference is a temperature difference, it is incumbent upon applicants to establish the criticality of that difference (Ex parte Khusid, et al., 174 USPQ 59).

CN '218 does not disclose that the additive is sodium tetraborate (amendment to claim 2 and new claims 7 and 11).

SU '867 discloses a method of making iron ore pellets where a boron containing material is added (abstract) to metallurgically improve the properties of the pellets (Use/advantage). The boron containing material may be borax (i.e. sodium tetraborate) or boric acid (abstract), indicating that boric acid and borax (i.e. sodium tetraborate) are art recognized equivalents or substitutes or suitable for the same purpose (See M.P.E.P. sections 2144.06 or 2144.07).

Stewart et al. discloses a method for producing metallic iron and titanium from titaniferous ores by mixing the ore with a flux (abstract) where the flux contains a suitable borate, e.g. boric acid or sodium tetraborate (borax) (col. 3 lines 31-45), indicating that boric acid and borax (i.e.



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sodium tetraborate) are art recognized equivalents or substitutes or suitable for the same purpose (See M.P.E.P. sections 2144.06 or 2144.07).

Lewis et al. discloses the use of oxides of boron in steel making, and teaches that boric acid and sodium tetraborate (borax) are suitable additives to provide oxides of boron (abstract), indicating that boric acid and borax (i.e. sodium tetraborate) are art recognized equivalents or substitutes or suitable for the same purpose (See M.P.E.P. sections 2144.06 or 2144.07).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use sodium tetraborate (borax) as taught by SU '867 or Stewart et al. or Lewis et al. in the pellets of CN '218 since SU '867 or Stewart et al. or Lewis et al. teach that sodium tetraborate (borax) is recognized in the art as equivalent or substitute for boric acid.

Clams 1-7 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Banyai et al. (U.S. Pat. No. 4,919,711).

Banyai et al. discloses a binder useful for agglomerating concentrated ore in the presence of water adding carboxymethyl cellulose (abstract) to iron ore (col. 5 lines 49-59). In example 3, sample 3-12 (Table 3, cols 9 and 10), iron ore (from example 1, col. 6 lines 5-20) is mixed with Aqualon™ CMC 7HX (i.e. carbomethyl cellulose; see footnote 3 of Table 2 of Banyai et al.) and sodium tetraborate (sample 3-12). Green pellets are dried and fired by slowly heating to preferably at least 2400 °F (i.e. about 1316 °C) where drying is performed at low temperature then firing at high temperature (col. 5 lines 34-48), which is equivalent to heating in stages. The range of at least about 1316 °C overlaps the claimed range of 1275-1350 °C. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a firing temperature of 1316-1350 °C, since Banai et al. teaches that temperatures of at least 2400 °F (i.e. about 1316 °C) are preferred.

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Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over CN '218 in view of Soviet Union patent 1678867 (SU '867), or Stewart et al. (U.S. Pat. No. 3,816,099) or Lewis et al. (U.S. Pat. No. 3,809,547) as applied to claim 1, and further in view of Japanese patent 03-023243 (JP '243), Ceramics Monthly (2001) and digitalfire.com (2001).

CN '218 in view of SU '867 or Stewart et al. or Lewis et al. is applied as discussed above regarding claim 1.

CN '218 in view of SU '867 or Stewart et al. or Lewis et al. does not disclose that the source of sodium tetraborate (borax) is derived from ulexite, colemanite, Gerstley, Laguna Murray's and mixtures thereof.

JP '243 discloses a process for modifying slag with a boron containing oxide, wherein borax, colemanite or ulexite are suitably used as sources for the oxide (abstract), indicating that borax (i.e. sodium tetraborate), colemanite or ulexite are art recognized equivalents or substitutes or suitable for the same purpose (See M.P.E.P. sections 2144.06 or 2144.07).

Digitalfire.com (2001) discloses that Gerstley, Murray's, Laguna, Gillespie, ulexite and colemanite borates are substitutes.

Ceramics Monthly (2001) discloses that Gerstley, Laguna, Murray's and Gillespie borates are substitutes.

It would have been obvious to one of ordinary skill in the art to use ulexite, colemanite, Gerstley, Laguna, Murray's and/or Gillespie borates as taught by JP '243, Digitalfire.com and Ceramics Monthly in the process of CN '218 in view of SU '867 or Stewart et al. or Lewis et al. since JP '243, Digitalfire.com and Ceramics Monthly teach that ulexite, colemanite, Gerstley, Laguna, Murray's and/or Gillespie borates are substitutes for each other and for Borax.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Banyai et al. (U.S. Pat. No. 4,919,711) as applied to claim 1, and further in view of Japanese patent 03-023243 (JP '243), Ceramics Monthly (2001) and digitalfire.com (2001).

Banyai et al. is applied as set forth above regarding claim 1.

Banyai et al. does not disclose that the source of sodium tetraborate (borax) is derived from ulexite, colemanite, Gerstley, Laguna Murray's and mixtures thereof.

JP '243 discloses a process for modifying slag with a boron containing oxide, wherein borax, colemanite or ulexite are suitably used as sources for the oxide (abstract), indicating that borax (i.e. sodium tetraborate), colemanite or ulexite are art recognized equivalents or substitutes or suitable for the same purpose (See M.P.E.P. sections 2144.06 or 2144.07).

Digitalfire.com (2001) discloses that Gerstley, Murray's, Laguna, Gillespie, ulexite and colemanite borates are substitutes.

Ceramics Monthly (2001) discloses that Gerstley, Laguna, Murray's and Gillespie borates are substitutes.

It would have been obvious to one of ordinary skill in the art to use ulexite, colemanite, Gerstley, Laguna, Murray's and/or Gillespie borates as taught by JP '243, Digitalfire.com and Ceramics Monthly in the process of Banyai et al. since JP '243, Digitalfire.com and Ceramics Monthly teach that ulexite, colemanite, Gerstley, Laguna, Murray's and/or Gillespie borates are substitutes for each other and for Borax.

#### ***Response to Arguments***

Applicant's arguments filed 10/31/2006 have been fully considered but they are not persuasive. Arguments regarding the rejection of claims 5 and 6 under 35 U.S.C. 102(b) are moot in view of amendments to the claims.

Applicant arguments are summarized maintained rejection grounds are as follows:

1. CN '218 does not disclose the use of a boron-containing compound selected from the amended Markush grouping.
2. CN '218 does not disclose heating in stages.
3. The combination of Morris with CN '218 is not proper because there is no motive to prevent oxidation in CN '218.

Examiner's responses are as follows:

1. The instant claims do not require the addition of a boron-containing compound. Independent claims 1 and 11 recite "...a binder selected from boron-containing compounds, calcium fluoride, and combinations thereof..." CN '218 discloses fluorite (i.e. calcium fluoride) as discussed in the 5/31/2006 Office action.
2. CN '218 discloses that green pellets are loaded into a furnace, kiln or calciner, where pellets are dried, preheated, and calcined (p. 3). Examiner contends that drying, preheating and calcining are stages of heating.
3. The combination is moot since inclusion of a boron containing compound is not required by independent claim 1 (see response to argument 1 above). The teaching of Morris is not relied upon for inclusion of calcium fluoride, therefore the rejection of claim 3 is maintained.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kathleen A. McNelis whose telephone number is 571 272 3554. The examiner can normally be reached on M-F 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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